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ABSTRACT

This paper examines expenditure patterns at higher education institutions in recent years, in light of the spiraling cost of higher education. It utilizes data from the U.S. Department of Education's Integrated Postsecondary Education Data System (IPEDS), begun in 1986, and the Higher Education General Information Survey (HEGIS), which goes back to 1966. IPEDS and HEGIS figures demonstrated that instruction predictably accounts for the largest percentage of total spending. While spending increased in almost all categories between 1977 and 1994, increases were smallest in the traditional areas of instruction, library, and plant operations, and largest in ancillary services and administration. Instructional spending as a percentage of total expenditures fell at public universities, public four-year colleges, and private four-year colleges. Research spending as a percentage of total expenditures increased significantly at private and public universities. Comparing different types of institutions, the largest proportionate change from 1990-91 to 1994-95 was a decrease in mean instructional expenditures at Carnegie Classification Research I public universities of 5.9 percent. Three appendixes provide IPEDS variable descriptions, Carnegie Classification codes, and a list of Carnegie-classified doctoral institutions. (Contains 14 references, 17 tables of data, and 1 figure.) (MDM)

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Exploring the Costs of Higher Education: Priorities and Policies

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The College Board's annual survey released in September reported average annual tuition outpaced inflation again this fall pushing average tuition at public universities above $3,000 a year and over $13,000 at private institutions. The average increase was 5% since last year, triple the current inflation rate. Even when inflation is factored-out, tuition at the nation's colleges and universities has more than doubled since 1976 (The New York Times, September 24, 1997). The total cost of higher education has grown consistently above the average level of inflation since the 1960s with the most significant increases coming in the 1980s. At the same time, the ability of average Americans to pay for higher education has diminished as wages, especially for low skill workers, have stagnated or fallen. Consequently, those who could most benefit from a college education find it is most inaccessible. Some states have more recently increased spending for higher education, beginning to make up for ground lost in the 1980s when funding fell. Yet, costs continue to rise faster than our willingness or ability as a nation to pay for them. These features of the financial landscape of American higher education have led some researchers to conclude that our "present course ... is unsustainable." (Council for Aid to Education, 1997: 1).

Public reaction to this set of conditions has begun to mount. While 75% of Americans interviewed said they believed college education was necessary "to get ahead in life," 40% said the cost of a college education today is not justified by what people get out of it (The New York Times, August 31, 1997). Parents' groups like College Parents of America have begun to organize to pressure government officials to devise ways to curb costs. Congress has responded by forming a special commission to investigate rising costs. The question, it seems, more and more Americans are beginning to ask is: "Where does all the money go?" Presumably, an answer to this question could lead to meaningful cost containment.

We do not expect to answer this question in any definitive manner in the present paper.

Instead, we pursue the modest task of describing expenditure patterns for a range of institutions of higher education in recent years. While we will briefly review sources of revenue, this is not the major focus of our paper. We will concentrate our efforts on budgetary expenditures. Once areas of spending increase can be identified, policy questions will be raised regarding the means of controlling these in order to keep higher education a commodity that is within reach of most Americans.

The Cost and Funding of Higher Education

Controlling for inflation by utilizing the Consumer Price Index (the conventional measure of inflation), college costs have increased at more than double the inflation rate since the 1970s. Educators prefer, however, to use an alternative measure, the Higher Education Price Index (HEPI) in measuring the effects of inflation. This measure takes into consideration rises in the costs of a typical market basket of educational goods including utilities, facilities, personnel costs, and campus services. Even if this measure developed by educators (which consistently scores inflation lower than the CPI) is used, however, college costs have consistently outpaced inflation. The Council for Aid to Education (CAE) finds that between 1980 and 1995, the annual average rate of growth in the costs of providing higher education (as measured by the HEPI) exceeded the general rate of inflation by a full percentage point. The greatest increase in costs occurred over the years 1983-84 and 1985-86 when total spending per student rose at 7 percent per year above inflation (Getz and Siegfried, 1994:323). According to the Council for Aid to Education, while college spending slowed slightly since 1995, the rate of spending is still likely to continue to out pace inflation for the foreseeable future (Council for Aid to Education, 1997: 10).

Exacerbating the problem of rising costs was the fact that in the 1980s and early 1990s

state spending for public higher education fell. Between 1984 and 1994, government appropriations per full time equivalent fell both in constant dollars and as a share of all revenue at public universities from $8,327 to $7,393 or from 53% to 42% as a share of all revenue (U.S. Department of Education, 1997a:172). As a result, tuition and fees per full time equivalent student (FTE) increased at all types of institutions of higher education. At public universities, tuition and fees rose from an average of $3,028 in 1977 to $4,187 in 1994, an increase from 19% to 24% as a share of all revenues. At private universities, the average increase in tuition and fees was even steeper from an average of $5,591 to $7,584 (U.S. Department of Education, 1997a:172).

The effect of these increases on the typical American family was dramatic. Between 1980 and 1995, tuition and room and board at public institutions increased from 11% to 15% of median family income. This increase was larger for lower income families whose incomes failed to keep pace with the cost of living generally. It increased from 22% to 32% for families at the twentieth percentile of family income compared to an increase of from 7% to 9% for families at the eightieth percentile. The pattern of increases at private institutions was comparable but steeper as tuition and room and board rose to 42% of median family income over this period (U.S. Department of Education, 1997b:50-51).

The cost of educating our population increased during the 1980s and 1990s even though the student population decreased. College spending actually increased at a higher rate during the boom years of the 1960s than in recent years but, at that time, there was a burgeoning student population to absorb unit costs. For example, spending in the second half of the 1960s increased by an average of 12% per year but per student spending grew by only 3%. By contrast, between 1975 and 1980, when student populations declined, overall spending grew at an annual rate of

slightly more than 10% while per pupil spending grew by slightly less than 10%. From 1980 to 1985, the increase in overall spending and per pupil expenditures was at roughly the same rate of between 8% and 9% (Hauptman and Merisotis, 1990: 41). Similar though less dramatic growth at private institutions during this period led to corresponding increases in per pupil spending but the decline in enrollments in the private sector in recent years has not been as dramatic as in the public sector (Snyder and Galambos, 1988:4; Hauptman and Merisotis, 1990:45).

College Spending: An Overview

One way to approach an understanding of "where the money goes" is to examine summary figures in broad areas of institutional expenditures. The U.S. Department of Education receives data from all postsecondary institutions including colleges and universities as well as technical and vocational schools. The current data collection system, IPEDS (Integrated Postsecondary Data System), began in 1986, replacing and expanding an earlier system called Higher Education General Information Survey (HEGIS) which goes back to 1966. Categories used in the collection of financial data have been revised several times over the history of these surveys. However, beginning in 1974, the Department of Education has employed the standard categories for reporting financial data outlined by the National Association of College and University Business Officers, yielding comparable data at least from the period 1977 to the present. The expenditure categories utilized in this analysis are defined in Appendix 1.

IPEDS and HEGIS figures demonstrate that instruction predictably accounts for the largest percentage of total spending (total current funds expenditures and transfers-see Appendix 1). Additional spending varies by type of institution with public and private universities expending a comparatively higher percentage on research while four year colleges tend to allocate varying amounts on research, instruction, and scholarships. Yet, while spending

increased in almost all categories between 1977 and 1994, increases were smallest in the traditional areas of instruction, library, and plant operations and largest in ancillary services and administration (Getz and Siegfried, 1991:298). Important differences surface, however, when a distinction is made between the differential types of institutions. Included in Table 1 are the relevant data on expenditures per FTE student.

Table 1 here

Although the dollar amount of instructional expenditures per FTE student increased between 1977 and 1994, instructional spending as a percentage of total expenditures fell at public universities (from 38.6 to 35.3), public 4 year colleges (from 45.1 to 42.1) and private 4 year colleges (from 36 to 32.3). Instructional spending as a percentage of total spending at private universities increased marginally over this period from 38 to 38.5 per cent. Expenditures for research increased by 22 per cent in dollar figures at private universities but fell in relation to other expenditure categories by over 3 per cent. Research spending at public universities accounted for a larger fraction of expenditures, rising from approximately 18 per cent in 1977 to over 22 per cent in 1994. Scholarships,[1] administration[2] and mandatory transfers[3] accounted for the largest increases at private universities, followed, in order, by spending for public service, instruction, and student services. Decreases came in research, operations, and libraries. At public universities, spending increased mostly for research, scholarships, administration, and mandatory transfers. Percentage decreases occurred for instruction, operations, and libraries. Private four year colleges experienced the highest gains in scholarships, student services, public service, and administration. Allocation decreases occurred in instruction, operations, libraries, research, and mandatory transfers. Public four year colleges experienced the largest growth in

research, administration, public service, scholarships, and student services; with decreases in allocation distributions for instruction, operations, libraries, and mandatory transfers.

Our analysis of the macro level data from IPEDS for the period 1977-1994 confirms the findings of Getz and Siegfried (1991) in their study which stops in 1988: "...the most obvious trend in expenditure patterns is the declining importance of the core areas of a college or university --instruction, academic support and plant operations" (p. 298). By way of contrast, "...the evidence points to college-supported financial aid, general administrative expenses, and student services as the fastest-growing cost components" (p. 301).

While some similarities arise from the comparison of these data, more striking perhaps are the differences in changing spending patterns depending on type of institution. This is quite intuitive, since different types of institutions serve different constituencies and have varying academic missions. In order to account for changing spending patterns in higher education, we need an even more refined method of categorizing institutions to insure comparability of data. Fortunately, such a method exists: the Carnegie Foundation classification system.

Classifying Institutions of Higher Education

The Carnegie Foundation for the Advancement of Teaching, beginning in 1970, created categories of similar institutions of higher education based on several criteria: the highest level of degree offering, the number of degrees conferred by discipline, and the amount of federal support for research received by the institution. There are currently ten categories in the new classification scheme; this study examines doctoral-lending institutions only. There are four such categories using this system: Carnegie 11--Research Universities I, Carnegie 12--Research Universities II, Carnegie 13--Doctoral Universities I, and Carnegie 14--Doctoral Universities II (see Appendix 2 for a more detailed discussion). Bear in mind that both public and private

institutions are included in each category. Thus, there are eight different groupings of higher education institutions employed in this analysis. Included in Appendix 3 is a complete list of institutions in each category.

The Data

Data for this analysis were readily available in a continual time-series from 1990/91 through 1994/95 (U.S. Department of Education, 1997c). Thus, the time-series design is limited to five years, though it appears that these data will be updated on an annual basis by the Department which will certainly facilitate further empirical inquiry into higher education spending.

Analyzing Budgetary Spending Patterns

In order to compare spending patterns in the Carnegie 11, 12, 13, and 14 institutions (both public and private), simple descriptive statistics can assist in analyzing spending patterns from 1990/91 to 1994/95. For each category of expenditures (instruction, research, public service, academic support, student services, physical plant, and total), means and standard deviations were calculated to determine proportionate changes from the first year of data to the last (excluding total expenditures, of course). Included in Tables 2-17 are the mean figures for institutional expenditures, as well as the change in budgetary proportions from 1990/91 to 1994/95, for the eight groups in this investigation.

Tables 2-17 here

The mean represents the sum of the values of each category divided by the number of values. The standard deviation is the most common measure of dispersion for interval data. It is reflective of the dispersion of data points about the mean. The smaller the standard deviation, the more the data cluster about the mean. The results of this limited time-series analysis (five years)

suggests that incrementalism (see Lindbloom, 1959) is the dominant budgetary mode for the categories of institutions reviewed.

Proportional Changes in Budgetary Expenditures, 1990/91-1994/95

Since there are eight categories of institutions, and six budgetary expenditures in each, our examination includes forty-eight differential categories in the aggregate. Incrementalism was certainly apparent in that of these forty-eight categories, only five resulted in a change in excess of one per cent or higher from 1990/91 to 1994/95. The largest proportionate change was a decrease in mean instructional expenditures in Carnegie 11 public institutions of 5.9 per cent. This is a significant reduction, compared to the other variables. Other changes in excess of one per cent included the following: -2.9 per cent for mean physical plant expenditures in Carnegie 12 public institutions; -1.2 per cent for mean instructional expenditures in Carnegie 14 public institutions; -1 per cent in mean public service expenditures in Carnegie 11 private institutions, though the data were dispersed widely as depicted in the high standard deviations; and a -4.7 per cent for mean academic support expenditures in Carnegie 13 private institutions. As the IPEDS data set expands longitudinally, however, more consistent budgetary patterns can be assessed over longer periods of time.

Conclusions

We began this paper by postulating the question "What expenditures are driving increasing costs in higher education?" We have not been able to provide a whollistic account in this preliminary study of higher education expenditures. Yet, we have ascertained that there have been no dramatic increases in proportional expenditures for the major categories of expenditures since the beginning of the 1990s. This is particularly salient of the most central mission, indeed, of all institutions in higher education: instruction.

There has been a marginal increase in mean research expenditures for four of the Carnegie categories in this study: Carnegie 11, 12, and 13 public institutions, as well as Carnegie 14 private institutions. This should not be terribly surprising, yet the small incremental proportions in only four of the eight categories at a time when medicine, science, and technology issues have become increasingly complex is certainly puzzling. Small increases in this mission area during a period of exponential growth in knowledge may prove counterproductive in promoting the general public good.

A proportional mean decrease occurred in physical plant expenditures for all eight subgroups; the same type of decline applied to academic support expenditures in six of the eight subgroups. It is difficult, however, to make any definitive conclusion about physical plant expenditures. The high standard deviations demonstrate the wide ranges in the data for this variable. Mean proportional increases in student services expenditures existed in four of the eight categories: Carnegie 12 public institutions, and Carnegie 12, 13, and 14 private institutions.

Future studies may yield greater insights into exactly how increases in college costs are being expended since traditional functions remain largely unchanged during the period under scrutiny. Yet, a major barrier to a more comprehensive understanding of university budgetary expenditures is the relatively large amount of missing data in the IPEDS data set. Many categories that might yield helpful insights into spending patterns (e.g., "Executive, Administrative and Managerial" useful for tracking changes in the number of managerial personnel relative to other employees; "Institutional Support," measuring expenditures on general administrative services, as well as legal and fiscal operations; and "Other E&G Expenditures," including additional spending on admissions, computers, and executive planning) contain substantial amounts of missing data from submitting institutions, making meaningful analysis difficult. There is some evidence that

these administrative expenditures have contributed to recent cost increases (Cambridge Associates, 1990; Snyder and Galambos, 1988). One suggestion that we offer is that the Department of Education improve its oversight in ensuring that institutions provide all requested data. Section 409 of the Higher Education Amendments of 1992 requires that all institutions receiving any federal assistance under Title IV of the Higher Education Act of 1965 provide requested data in a timely manner to the satisfaction of the Secretary (U.S. Department of Education, 1995:viii). Enforcement of this provision would provide researchers and the public at large a better opportunity to evaluate the utilization of higher education funds.

Our analysis also assists in analyzing recommendations advanced by higher education commentators. For example, the former governor of New Jersey, Thomas Keane, provided media headlines earlier in 1997 when a group he chairs, the Council for Aid to Education, published the results of a study into the costs of higher education (Council for Aid to Education, 1997). Among the Council's recommendations were:

--a reallocation of more financial resources to education by federal and state governments;

--structural changes in the governance system to permit internal institutional reallocation of resources (e.g., the elimination of departments or divisions that do not meet performance objectives in providing value added benefits to students);

--a greater definition and measurement of faculty productivity, including re-examination of hiring practices;

--improved financial accountability through budgeting changes allowing for profit/loss analysis;

--a greater mission differentiation among institutions within each state and the prevention of mission creep (e.g., community colleges trying to provide services of four year

ions, and so on);

--the development of sharing arrangements to avoid duplication (e.g., transferability of credits between institutions, pooled standardized courses state- or region-wide, and the use of the Internet to avoid duplication of resources in the library);

--the outsourcing of some functions (e.g., budgeting and the physical plant);

--the increased use of Cyberspace (e.g., on-line libraries) and less reliance on physical space; and

--increased minimum educational requirements for all citizens and greater emphasis on lifelong-learning.

As a result of this analysis, some of these recommendations can be addressed. For example, those analysts who seek to reduce investments in instruction, research, and the physical plant may in fact reduce total expenditures (and may therefore have independent merit), but these are not areas that have substantially contributed to increased costs in higher education. In particular, instructional and physical plant expenditures have marginally decreased as a percentage of expenditures in most of the doctoral categories in this evaluation. Reforms directed at these variables will have little impact in stemming the tide of expenditure growth. Our study does support the Council for Aid to Education's call for greater financial accountability, but our limited time-series data do not warrant a recommendation that governments should spend more on higher education. It would be presumptuous to do so at this point since we do not have the breadth of financial data that would render a more meaningful evaluation of current spending patterns.

One of the Council for Aid to Education's recommendations has recently been joined by others in the higher education community (e.g., The Chronicle of Higher Education, October 3,

1997; The Economist, October 4, 1997). All have proposed greater reliance on technology in the delivery of courses. Standard introductory courses, for example, can be broadcast or cybercast from a central location with an acknowledged expert in the field. Students could view or "plug-into" lectures via television or computer and be guided in discussion by graduate assistants or junior faculty. These procedures have the intuitive benefit of reducing the need for higher-salaried faculty. Yet, not only have instructional expenditures lagged behind recent increases in the cost of higher education, but faculty costs constitute a surprisingly small fraction of total expenditures. This is depicted in Figure 1.

Figure 1 here

Faculty salaries in relation to overall expenditures are depicted in Figure 1 for a subset of the sample utilized in this study (Carnegie 13 public institutions; six of the twenty-eight institutions reported no data). Data are arrayed in rank order according to overall expenditures. The gap between the two in many institutions is quite substantial. Salaries for 9-10 month faculty range from a low of 10.06 per cent of total expenditures (University of Missouri at Kansas City) to a high of 19.94 per cent (University of Memphis).

The data suggest that faculty costs are relatively low in relation to their contributions to the primary missions of instruction, research, and public service. What we do not know is how much universities spend on new instructional technology or the staff required to service it. It would, therefore, be premature to suggest that telecourses or cybercourses be increased as a cost cutting measure. The relative cost of faculty to non-faculty employees in delivering essential services is an area requiring greater investigation as the data become available.

Finally, we conclude that the debate over the future of higher education costs and

expenditures be joined by the public at large. It is the public that must bear most of the costs--directly or indirectly--of educating its citizens and it is the public that must have input over the allocation of scarce resources to public institutions in an era of government retrenchment.

Notes

1. While internal institutional scholarships are revenue for some students, they are a cost for others who pay full price. For accounting purposes, they are traditionally treated as an expenditure since they represent a cost of doing business.

2. Administration, or institutional support, includes expenditures for the day-to-day operational support of the institution. It includes expenditures for general administrative services, executive direction and planning, legal and fiscal operations, and public relations and development. It does not include expenditures for physical plant operations.

3. Mandatory expenditures are those that must be made to fulfill binding contracts. For the most part, they represent an interest expense on debt.

Appendix 1
Variable Descriptions

Source: Integrated Postsecondary Education Data System--1994 (CD-ROM version). National Center for Education Statistics, Office of Educational Research and Improvement, U.S. Department of Education (January, 1997).

1. Current Funds Expenditures and Transfers: costs incurred for goods and services used for the purpose of operating the institution. This includes the acquisitions cost of capital assets, such as equipment and library books, to the extent that current funds are budgeted for and used by operating departments for such purposes. This includes the following: instruction, research, public service, academic support, student services, institutional support, operation and maintenance of the physical plant, scholarships and fellowships, auxiliary enterprises, hospitals, and independent operations. Auxiliary expenditures are essentially for self-supporting operations of the institution that exist to provide a service to faculty, students, or staff, that charge a fee that is directly related to, although not necessarily equivalent to, the cost of the service. Examples include college stores, student health services, college stores, residence halls, and food services. Hospital expenditures are associated with operation costs, including nursing expenses, other professional services, general services, administrative services, fiscal services, and charges for physical plant operations. Independent expenditures are funds utilized for operations that are independent of or unrelated to the primary missions of the institution (i.e., instruction, research, public service) although they may contribute indirectly to the enhancement of these programs. This category is typically limited to expenditures of a major federally funded research and development center.

2. Instruction: this includes expenditures of the colleges, schools, departments, and other instructional divisions of the institution and expenditures for departmental research and public service that are not separately budgeted. This figure includes expenditures for credit and non-credit activities and excludes expenditures for academic administration where the primary function is administration (e.g., academic deans). It also includes general academic instruction, occupational and vocational instruction, special session instruction, community education, preparatory and adult basic education, and remedial and tutorial instruction conducted by the teaching faculty for the institutions's students.

3. Research: this category includes funds expended for activities specifically organized to produce research outcomes and commissioned by an agency either external to the institution or separately budgeted by a unit within the institution.

4. Public Service: this entails funds budgeted specifically for public service and expended for activities designed to provide non-instructional services that are beneficial to groups that are external to the institution. Examples include seminars and projects provided to the community and expenditures for community services and cooperative extension services.

5. Academic Support: this includes expenditures for the support services that are an integral part of the institution's primary mission of instruction, research, and public service. Included in this

category are expenditures for libraries, museums, audiovisual services, academic computing support, ancillary support, academic administration, personnel development, and course and curriculum development. It also includes expenditures for veterinary and dental clinics if their primary purpose is to support the institutional program.

6. Student Services: this category includes expenditures for admissions, registrar activities, and activities whose primary purpose is to contribute to students' emotional and physical well-being and to their intellectual, cultural, and social development outside the context of the formal instructional program. Examples include career guidance, conseling, financial aid administration, and student health services.

7. Physical Plant: this entails the operation and maintenance of the physical plant and includes expenditures for operations established to provide service and maintenance related to campus grounds and facilities used for educational and general purposes.

Appendix 2
Carnegie Foundation Classification Codes

Source: Integrated Postsecondary Education Data System--1994 (CD-ROM version). National Center for Education Statistics, Office of Educational Research and Improvement, U.S. Department of Education (January, 1997).

The Carnegie classification system dates back to 1970, and was created by the Carnegie Foundation for the Advancement of Teaching. For the IPEDS data set, codes were not available prior to 1994. Thus, institutions in this analysis are classified in conformance with the 1994 categorizations. This classification design currently includes about 3,600 universities and colleges in the U.S. that are degree-granting and accredited by an agency recognized by the U.S. Secretary of Education. There are ten categories: this study focuses on doctoral-granting institutions only (there are four for both public and private institutions). The classification schemes are based largely on academic mission and are not intended to measure quality. Institutions are classified according to the following: highest level of degree offering, the number of degrees conferred by discipline, and the amount of federal support for research received by the institution. The four doctoral categories are as follows:

11-Research Universities I: these institutions award 50 or more doctoral degrees annually, offer a full range of baccalaureate programs, and receive $40 million or more annually in federal support.

12-Research Universities II: these institutions award 50 or more doctoral degrees annually, offer a full range of baccalaureate programs, and receive between $15.5 and $40 million annually in federal support.

13-Doctoral Universities I: these institutions award 40 or more doctoral degrees annually in 5 or more disciplines and offer a full range of baccalaureate programs.

14-Doctoral Universities II: these institutions award at least 10 doctoral degrees annually (in 3 or more disciplines), or 20 or more doctoral degrees in 1 or more disciplines and offer a full range of baccalaureate programs.

Appendix 3
Carnegie Classified Doctoral Institutions

Source: Integrated Postsecondary Education Data System--1994 (CD-ROM version). National Center for Education Statistics, Office of Educational Research and Improvement, U.S. Department of Education (January, 1997).

Public Institutions

Carnegie 11 (N=59): University of Alabama--Birmingham; Arizona State University; University of Arizona; University of California--Berkeley; University of California--Davis; University of California--Irvine; University of California--Los Angeles; University of California--San Diego; University of California--San Francisco; University of California--Santa Barbara; University of Colorado--Boulder; Colorado State University; University of Connecticut; Florida State University; University of Florida; Georgia Institute of Technology; University of Georgia; University of Hawaii--Manoa; University of Illinois--Chicago; University of Illinois--Urbana; Indiana University; Iowa State University; University of Iowa; University of Kansas; University of Kentucky; Louisiana State University; University of Maryland--College Park; University of Massachusetts--Amherst; University of Michigan; Michigan State University; Wayne State University; University of Minnesota; University of Missouri--Columbia; University of Nebraska--Lincoln; Rutgers University--New Brunswick; University of New Mexico; New Mexico State University; State University of New York at Buffalo; State University of New York at Stony Brook; University of North Carolina--Chapel Hill; North Carolina State University; University of Cincinnati; Ohio State University; Oregon State University; Pennsylvania State University; University of Pittsburgh; Temple University; University of Tennessee; Texas A&M University; University of Texas--Austin; Utah State University; University of Utah; Virginia Polytechnic & State University; Virginia Commonwealth University; University of Virginia; University of Washington; West Virginia University; University of Wisconsin--Madison; and Purdue University.

Carnegie 12 (N=26): Auburn University; University of Arkansas--Fayetteville; University of California--Riverside; University of California--Santa Cruz; University of Delaware; University of South Florida; University of Idaho; Southern Illinois University--Carbondale; Kansas State University; University of Mississippi; Mississippi State University; State University of New York at Albany; Kent State University; Ohio University; Oklahoma State University; University of Oklahoma; University of Oregon; University of Rhode Island; Clemson University; University of South Carolina; University of Houston--University Park; Texas Tech University; University of Vermont; Washington State University; University of Wisconsin--Milwaukee; and University of Wyoming.

Carnegie 13 (N=28): University of Alabama--Tuscaloosa; Northern Arizona University; University of Northern Colorado; Georgia State University; Illinois State University; Northern Illinois University; Ball State University; University of Louisville; Western Michigan University; University of Southern Mississippi; University of Missouri--Kansas City; University of Missouri--Rolla; City University of New York Graduate School; State University of New

York at Binghamton; University of North Carolina--Greensboro; University of Akron; Bowling Green State University; Miami University; University of Toledo; Indiana University of Pennsylvania; University of Memphis; East Texas State University; University of North Texas; University of Texas--Arlington; University of Texas--Dallas; Texas Woman's University; College of William and Mary; and Old Dominion University.

Carnegie 14 (N=38): University of Alabama--Huntsville; University of Alaska--Fairbanks; San Diego State University; University of Colorado--Denver; Colorado School of Mines; University of Central Florida; Florida Atlantic University; Florida International University; Idaho State University; Indiana University--Purdue University at Indianapolis; Indiana State University; Wichita State University; Louisiana Tech University; University of New Orleans; University of Southwestern Louisiana; University of Maine; University of Maryland--Baltimore County; University of Massachusetts--Lowell; Michigan Technological University; University of Missouri--St. Louis; Montana State University; University of Montana; University of Nevada--Reno; University of New Hampshire; New Jersey Institute of Technology; Rutgers University--Newark; State University of New York College of Environmental Science; University of North Dakota; North Dakota State University; Cleveland State University; Wright State University; Portland State University; University of South Dakota; Middle Tennessee State University; Tennessee State University; Texas Southern University; George Mason University; and University of Puerto Rico--Rio Piedras Campus.

Private Institutions

Carnegie 11 (N=29): California Institute of Technology; University of Southern California; Yale University; Georgetown University; Howard University; University of Miami; Emory University; University of Chicago; Northwestern University; Johns Hopkins University; Boston University; Harvard University; Massachusetts Institute of Technology; Tufts University; Washington University; Princeton University; Columbia University; Cornell University--Endowed Colleges; New York University; University of Rochester; Rockefeller University; Yeshiva University; Duke University; Case Western Reserve University; Carnegie Mellon University; University of Pennsylvania; Brown University; Vanderbilt University; and Stanford University.

Carnegie 12 (N=11): George Washington University; University of Notre Dame; Tulane University; Brandeis University; Northeastern University; St. Louis University; Rensselaer Polytechnic Institute; Syracuse University; Lehigh University; Rice University; and Brigham Young University.

Carnegie 13 (N=23): Claremont Graduate School; U.S. International University; University of Denver; American University; Catholic University of America; Florida Institute of Technology; Nova Southeastern University; Clark Atlanta University; Illinois Institute of Technology; Loyola University of Chicago; Boston College; Andrews University; Adelphi University; Fordham University; Hofstra University; New School for Social Research; Polytechnic University; St. John's University; Teachers College at Columbia University; The Union Institute; Drexel University; Southern Methodist University; and Marquette University.

Carnegie 14 (N=22): Biola University; University of Laverne; Loma Linda University; University of the Pacific; Pepperdine University; University of San Diego; University of San Francisco; Depaul University; Clark University; Worcester Polytechnic Institute; University of Detroit; Dartmouth College; Seton Hall University; Stevens Institute of Technology; Clarkson University; Pace University; Wake Forest University; University of Tulsa; Duquesne University; Hannemann University; Baylor University; and Texas Christian University.

Table 1

Educational and General Expenditures By Institution Type Per FTE Student

Private Universities

	Instruction	Administration	Student Services	Research	Libraries	Public Service	Operations	Scholarships	Mandatory Transfers
%Distribution 1994	38.5%	13.9%	3.6%	17.7%	3.2%	2.8%	7.3%	11.4%	1.8%
% change 1977-1994	+.5%	+.7%	+.3%	-3.4%	-1%	+.6%	-1.5%	+3.3%	+.7%

Public Universities

	Instruction	Administration	Student Services	Research	Libraries	Public Service	Operations	Scholarships	Mandatory Transfers
%Distribution 1994	35.3%	13.3%	3.7%	22.4%	2.9%	8.1%	7.2%	5.6%	1.5%
% change 1977-1994	-3.7%	+.3%	0	+4%	-.6%	0	-1.9%	+1.6%	+.3%

Private 4 Year Colleges

	Instruction	Administration	Student Services	Research	Libraries	Public Service	Operations	Scholarships	Mandatory Transfers
%Distribution 1994	32.3%	20.6%	8.7%	4.4%	2.9%	3.5%	8.4%	17.1%	2.1%
% change 1977-1994	-5%	+.2%	+1.3%	-.6%	-1%	+1.1%	-2.8%	+7.1%	-.2%

Public 4 Year Colleges

	Instruction	Administration	Student Services	Research	Libraries	Public Service	Operations	Scholarships	Mandatory Transfers
%Distribution 1994	42.1%	18.8%	6.2%	10.1%	3.0%	4.4%	8.9%	4.9%	1.6%
% change 1977-1994	-4.3%	+2.1%	+.4%	+3.1%	-.9%	+1.5%	-2.6%	+1%	-.4%

Source: Figures derived from U.S. Department of Education. 1997. The Condition of Education 1997. Washington, D.C.: Government Printing Office. Figures may not total 100% due to rounding.
The Higher Education Price Index was used to calculate constant dollars. This may understate the rise in costs.

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Table 2
Mean Institutional Expenditures, Carnegie 11 Public Institutions

(N=59)

	1990/91	1991/92	1992/93	1993/94	1994/95
Instruction	171,603,800 (165,572,500)	163,008,100 (76,113,670)	164,001,500 (76,495,280)	169,309,000 (77,027,620)	174,194,600 (75,828,370)
Research	101,828,100 (59,461,500)	112,329,100 (66,061,020)	130,356,300 (119,545,300)	123,689,500 (73,655,760)	128,129,500 (76,909,610)
Public Service	31,397,900 (26,001,620)	34,925,580 (27,524,230)	35,590,080 (31,276,050)	37,925,020 (32,236,500)	38,438,590 (30,374,960)
Academic Support	41,866,050 (26,662,990)	44,313,710 (27,351,680)	45,151,660 (28,347,520)	46,711,760 (29,173,820)	49,308,040 (30,932,050)
Student Services	16,274,660 (12,797,890)	15,774,110 (9,111,433)	15,942,970 (9,274,332)	16,877,600 (8,816,514)	17,306,640 (9,288,062)
Physical Plant	32,070,830 (14,070,830)	33,654,620 (16,171,270)	37,586,850 (43,021,530)	33,298,330 (15,404,030)	34,803,830 (15,841,010)
Total Expenditures	588,593,200 (286,902,100)	648,877,200 (323,349,100)	677,413,800 (364,559,800)	700,638,000 (361,482,500)	733,517,200 (375,382,500)

Table 3
Proportional Institutional Expenditures, Carnegie 11 Public Institutions

	1990/91	1994/95	% Change from Year 1 to 5
Instruction	30.8% (34.4)	24.9% (5.2)	-5.9%
Research	17.9% (7.8)	18.1% (7.2)	+0.2%
Public Service	5.9% (4.5)	6.3% (5.8)	+0.4%
Academic Support	7.1% (2.3)	6.8% (2.1)	-0.3%
Student Services	3.0% (2.6)	2.6% (1.4)	-0.4%
Physical Plant	5.8% (2.0)	5.1% (1.6)	-0.7%

Note: Standard deviations are in parentheses.

Table 4
Mean Institutional Expenditures, Carnegie 12 Public Institutions

(N=26)

	1990/91	1991/92	1992/93	1993/94	1994/95
Instruction	70,715,270	73,567,740	78,173,890	80,663,590	83,237,650
	(21,832,980)	(22,541,240)	(25,340,600)	(26,891,300)	(27,530,700)
Research	31,035,700	32,903,360	33,590,250	36,704,300	128,129,500
	(14,287,940)	(16,087,440)	(16,458,850)	(16,586,360)	(76,909,610)
Public Service	15,849,830	16,088,680	16,878,160	17,149,350	38,438,590
	(12,623,960)	(13,559,000)	(12,978,800)	(13,648,860)	(30,374,960)
Academic Support	18,746,780	18,478,040	20,697,380	21,308,950	49,308,040
	(9,963,517)	(7,804,420)	(8,449,161)	(9,189,014)	(30,932,050)
Student Services	8,192,715	8,726,236	9,159,099	9,649,527	17,306,640
	(3,806,825)	(5,664,227)	(4,081,855)	(4,220,990)	(9,288,062)
Physical Plant	22,358,680	15,989,310	23,018,510	15,854,820	34,803,830
	(36,185,980)	(4,816,993)	(38,996,850)	(4,202,237)	(15,841,010)
Total Expenditures	223,807,700	238,826,920	249,269,200	258,384,600	267,461,500
	(54,831,390)	(55,518,330)	(59,236,180)	(62,033,590)	(65,776,730)

Table 5
Proportional Institutional Expenditures, Carnegie 12 Public Institutions

	1990/91	1994/95	% Change from Year 1 to 5
Instruction	31.6% (5.4)	31.1% (5.6)	-0.5%
Research	14.0% (6.1)	14.7% (6.5)	+0.7%
Public Service	6.6% (4.8)	6.5% (4.6)	-0.1%
Academic Support	8.2% (2.7)	8.4% (2.5)	+0.2%
Student Services	3.8% (1.9)	3.9% (1.7)	+0.1%
Physical Plant	9.1% (11.1)	6.2% (.008)	-2.9%

Note: Standard deviations are in parentheses.

Table 6
Mean Institutional Expenditures, Carnegie 13 Public Institutions

(N=28)

	1990/91	1991/92	1992/93	1993/94	1994/95
Instruction	48,848,040 (22,390,040)	54,307,040 (19,863,210)	56,055,290 (20,860,330)	58,050,820 (20,755,290)	61,367,640 (21,564,840)
Research	6,557,639 (5,866,052)	7,135,622 (5,904,643)	7,685,827 (5,807,471)	8,349,869 (6,303,174)	8,768,676 (6,324,959)
Public Service	6,538,277 (12,589,430)	5,284,610 (7,295,606)	6,609,280 (9,493,910)	6,187,689 (9,176,883)	6,429,677 (8,376,040)
Academic Support	11,683,530 (6,101,373)	12,760,200 (6,571,601)	13,123,560 (6,408,996)	13,616,850 (6,489,337)	14,387,680 (6,645,188)
Student Services	6,378,643 (3,676,916)	6,984,619 (3,682,085)	7,283,493 (3,739,559)	7,699,200 (3,943,342)	8,146,145 (4,100,194)
Physical Plant	10,234,740 (4,433,025)	11,571,700 (5,201,756)	10,947,430 (4,666,491)	10,923,850 (4,487,089)	11,415,700 (4,500,487)
Total Expenditures	134,903,200 (57,722,280)	146,925,300 (60,739,590)	153,414,200 (62,071,610)	160,038,900 (63,019,120)	169,181,300 (64,866,630)

Table 7
Proportional Institutional Expenditures, Carnegie 13 Public Institutions

	1990/91	1994/95	% Change from Year 1 to 5
Instruction	37.0% (9.6)	37.1% (5.4)	+0.1%
Research	4.8% (4.1)	5.5% (4.3)	+0.7%
Public Service	4.1% (7.2)	3.2% (2.6)	-0.9%
Academic Support	8.4% (1.7)	8.3% (1.7)	-0.1%
Student Services	5.0% (2.6)	5.0% (2.2)	0
Physical Plant	7.9% (2.1)	7.0% (2.0)	-0.9%

Note: Standard deviations are in parentheses.

Table 8
Mean Institutional Expenditures, Carnegie 14 Public Institutions

(N=38)

	1990/91	1991/92	1992/93	1993/94	1994/95
Instruction	39,905,070 (22,142,460)	42,856,020 (25,470,170)	53,248,200 (56,287,000)	84,949,840 (185,634,400)	47,687,730 (24,040,390)
Research	12,577,230 (12,028,320)	13,190,530 (12,719,460)	14,236,810 (13,332,100)	17,010,250 (15,201,360)	8,768,676 (6,324,959)
Public Service	4,436,619 (6,733,552)	4,950,250 (7,587,107)	5,180,161 (7,096,205)	5,724,755 (8,122,805)	6,378,249 (9,388,536)
Academic Support	9,848,781 (5,010,859)	10,157,620 (5,226,125)	11,113,400 (7,949,687)	12,354,540 (9,059,444)	12,760,330 (10,137,640)
Student Services	5,207,608 (2,386,249)	5,511,927 (2,681,558)	5,912,968 (2,827,647)	6,971,756 (5,628,330)	6,618,009 (3,485,995)
Physical Plant	8,433,293 (4,437,350)	8,789,674 (4,805,383)	8,686,133 (4,871,199)	11,266,600 (14,506,350)	9,809,531 (5,773,834)
Total Expenditures	116,431,300 (80,572,900)	126,036,600 (94,861,050)	135,199,700 (109,327,700)	144,925,900 (111,801,800)	149,492,500 (117,940,000)

Table 9
Proportional Institutional Expenditures, Carnegie 14 Public Institutions

	1990/91	1994/95	% Change from Year 1 to 5
Instruction	35.7% (7.0)	34.5% (7.1)	-1.2%
Research	11.6% (10.6)	11.6% (8.3)	0
Public Service	3.4% (3.7)	3.8% (4.0)	+0.4%
Academic Support	8.9% (2.9)	8.6% (2.8)	-0.3%
Student Services	4.9% (1.6)	4.9% (2.0)	0
Physical Plant	7.7% (2.1)	7.6% (4.7)	-0.1%

Note: Standard deviations are in parentheses.

Table 10
Mean Institutional Expenditures, Carnegie 11 Private Institutions

(N=29)

	1990/91	1991/92	1992/93	1993/94	1994/95
Instruction	156,062,500 (87,944,160)	167,072,300 (97,676,700)	185,805,300 (108,109,900)	198,425,700 (117,809,100)	211,519,100 (126,213,400)
Research	100,255,400 (67,211,660)	103,584,400 (67,884,320)	109,676,900 (71,381,780)	118,436,800 (77,976,920)	124,243,600 (81,023,680)
Public Service	20,253,670 (37,966,200)	21,683,320 (42,559,580)	14,709,400 (38,463,720)	24,554,580 (50,163,400)	18,467,980 (47,932,740)
Academic Support	33,065,540 (22,665,340)	34,445,280 (25,487,240)	38,020,140 (27,451,230)	37,363,940 (23,696,440)	39,199,280 (24,917,360)
Student Services	14,003,660 (6,301,094)	14,774,720 (7,257,545)	14,949,780 (8,178,640)	16,624,480 (7,298,039)	16,699,760 (8,670,680)
Physical Plant	32,490,650 (18,997,200)	36,705,680 (29,001,430)	39,252,750 (29,738,450)	39,223,420 (29,707,050)	42,312,170 (30,318,080)
Total Expenditures	677,241,400 (338,897,700)	733,392,800 (366,918,200)	783,931,000 (387,607,900)	832,069,000 (407,903,300)	877,517,200 (436,660,800)

Table 11
Proportional Institutional Expenditures, Carnegie 11 Private Institutions

	1990/91	1994/95	% Change from Year 1 to 5
Instruction	23.5% (9.5)	24.2% (9.7)	+0.7%
Research	16.8% (10.1)	16.2% (10.5)	-0.6%
Public Service	3.5% (6.0)	2.5% (5.2)	-1.0%
Academic Support	5.4% (3.0)	5.1% (2.9)	-0.3%
Student Services	2.4% (1.2)	2.2% (2.0)	-0.2%
Physical Plant	5.3% (2.4)	5.2% (2.8)	-0.1%

Note: Standard deviations are in parentheses.

Table 12
Mean Institutional Expenditures, Carnegie 12 Private Institutions

(N=11)

	1990/91	1991/92	1992/93	1993/94	1994/95
Instruction	76,593,740	82,558,100	72,743,540	79,417,300	97,690,420
	(31,454,850)	(33,578,780)	(49,142,240)	(41,242,510)	(41,476,330)
Research	19,847,420	21,326,810	22,205,580	21,603,180	25,106,340
	(8,966,486)	(9,041,008)	(9,477,620)	(10,337,880)	(7,251,504)
Public Service	2,709,188	2,477,274	1,567,885	2,612,247	1,637,759
	(2,332,136)	(3,052,319)	(2,751,121)	(3,115,464)	(2,455,358)
Academic Support	13,081,850	14,415,390	14,772,910	14,612,840	20,082,840
	(6,757,120)	(7,809,387)	(7,287,907)	(9,550,812)	(12,948,480)
Student Services	9,017,285	10,426,020	10,979,700	9,527,133	10,318,010
	(7,099,395)	(6,828,785)	(7,034,294)	(6,300,061)	(5,026,013)
Physical Plant	14,583,210	14,878,270	14,864,610	14,649,620	16,849,380
	(7,584,241)	(7,923,359)	(6,552,226)	(7,751,129)	(6,347,936)
Total Expenditures	273,545,400	287,909,100	311,000,000	300,794,700	360,181,800
	(122,800,900)	(127,869,000)	(141,734,300)	(194,011,800)	(181,846,500)

Table 13
Proportional Institutional Expenditures, Carnegie 12 Private Institutions

	1990/91	1994/95	% Change from Year 1 to 5
Instruction	28.9% (7.7)	28.2% (9.7)	-0.7%
Research	9.2% (6.7)	9.0% (5.4)	-0.2%
Public Service	1.0% (0.7)	0.5% (0.6)	-0.5%
Academic Support	5.1% (1.9)	5.9% (2.5)	+0.8%
Student Services	3.4% (2.5)	3.6% (2.5)	+0.2%
Physical Plant	5.7% (2.1)	5.5% (2.2)	-0.2%

Note: Standard deviations are in parentheses.

Table 14
Mean Institutional Expenditures, Carnegie 13 Private Institutions

(N=23)

	1990/91	1991/92	1992/93	1993/94	1994/95
Instruction	31,519,590 (16,771,420)	33,442,990 (18,278,380)	35,055,080 (19,689,780)	36,650,820 (21,021,750)	40,414,520 (24,227,780)
Research	4,765,386 (3,476,580)	4,891,164 (3,167,885)	5,071,987 (3,907,197)	5,094,815 (4,110,058)	5,534,317 (4,496,311)
Public Service	1,645,916 (1,580,557)	1,945,020 (2,159,387)	1,628,732 (2,368,585)	2,489,554 (2,922,812)	1,950,848 (3,277,879)
Academic Support	9,356,933 (9,349,567)	8,258,699 (5,984,553)	8,789,381 (6,295,760)	8,995,679 (6,368,495)	9,485,269 (6,747,707)
Student Services	4,950,757 (2,960,576)	5,427,981 (3,203,235)	5,925,529 (3,456,668)	5,964,328 (3,635,723)	6,408,949 (3,726,941)
Physical Plant	6,761,070 (4,279,543)	7,145,038 (4,581,741)	7,617,521 (4,842,407)	7,935,933 (5,183,298)	8,333,236 (5,230,417)
Total Expenditures	108,366,500 (97,263,380)	116,891,190 (112,405,200)	122,666,000 (129,021,200)	133,560,700 (132,259,400)	139,573,800 (125,962,000)

Table 15
Proportional Institutional Expenditures, Carnegie 13 Private Institutions

	1990/91	1994/95	% Change from Year 1 to 5
Instruction	33.5% (9.7)	32.7% (8.2)	-0.8%
Research	5.4% (4.2)	5.2% (4.7)	-0.2%
Public Service	1.8% (0.7)	1.4% (2.8)	-0.4%
Academic Support	12.2% (21.2)	7.5% (2.9)	-4.7%
Student Services	5.0% (2.5)	5.3% (1.9)	+0.3%
Physical Plant	6.7% (2.1)	6.5% (2.4)	-0.2%

Note: Standard deviations are in parentheses.

Table 16
Mean Institutional Expenditures, Carnegie 14 Private Institutions

(N=22)

	1990/91	1991/92	1992/93	1993/94	1994/95
Instruction	30,352,870 (26,677,410)	32,195,170 (29,095,410)	37,073,550 (31,566,560)	39,416,520 (34,593,960)	42,228,120 (38,873,440)
Research	6,069,255 (9,181,026)	7,029,990 (10,614,490)	7,186,633 (11,460,640)	9,028,316 (13,743,140)	8,485,581 (14,580,220)
Public Service	1,665,681 (1,247,482)	1,742,222 (1,402,842)	1,187,999 (1,447,367)	1,938,428 (1,549,125)	1,746,513 (1,885,827)
Academic Support	7,392,817 (5,723,412)	8,405,822 (7,162,812)	9,175,742 (7,406,881)	9,426,193 (7,536,172)	9,958,439 (7,954,515)
Student Services	5,114,287 (4,533,995)	5,847,301 (4,582,864)	6,464,762 (4,815,437)	6,906,558 (4,745,535)	7,501,627 (5,043,910)
Physical Plant	5,693,080 (3,714,756)	5,827,039 (3,197,978)	6,476,984 (3,699,443)	6,909,520 (3,801,310)	7,609,441 (4,748,696)
Total Expenditures	98,961,920 (66,929,950)	112,448,500 (72,317,610)	124,109,000 (83,439,580)	131,899,300 (92,772,580)	139,833,100 (98,948,360)

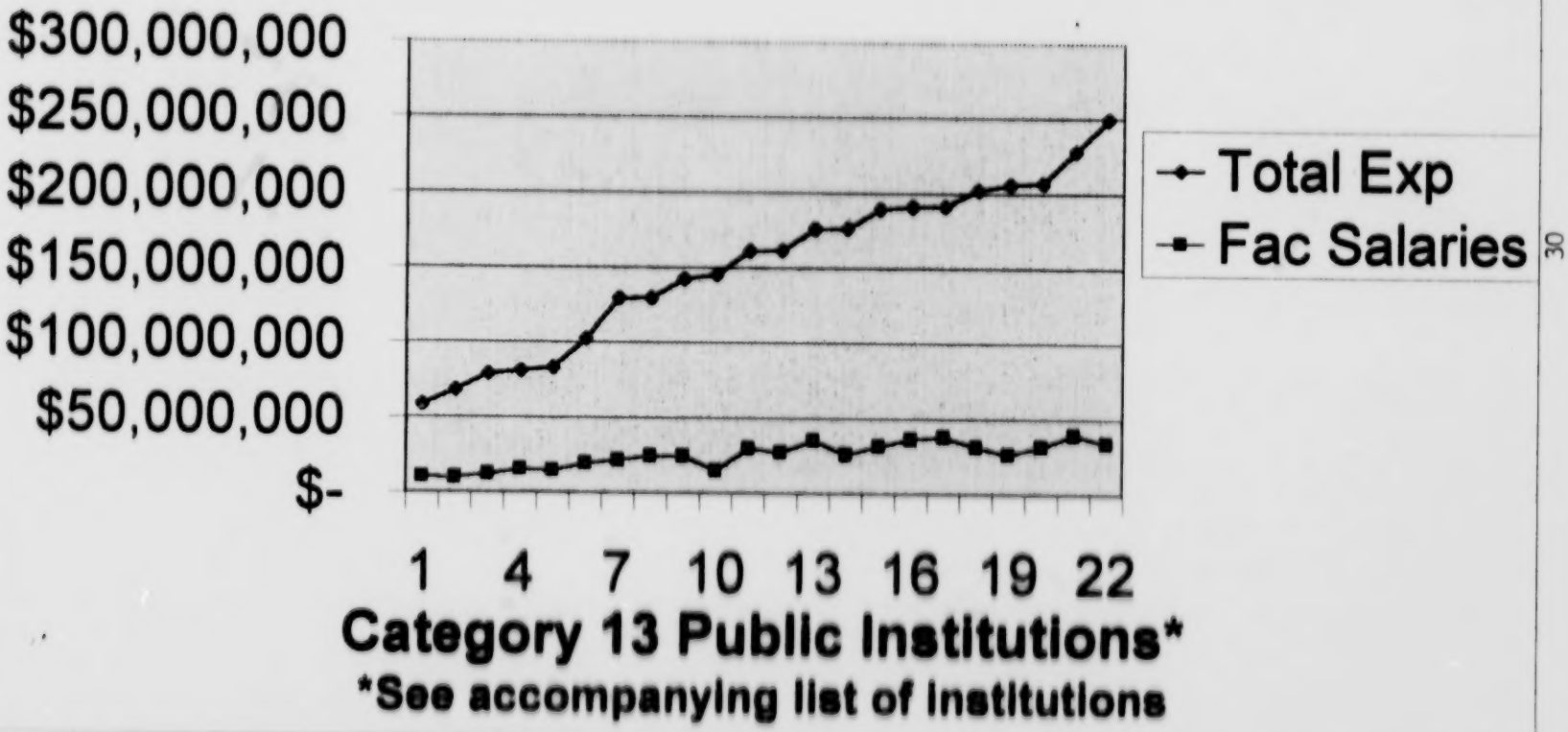
Table 17
Proportional Institutional Expenditures, Carnegie 14 Private Institutions

	1990/91	1994/95	% Change from Year 1 to 5
Instruction	30.9% (7.4)	31.2% (9.0)	+0.3%
Research	4.7% (4.1)	5.2% (5.7)	+0.5%
Public Service	1.8% (1.4)	1.3% (1.2)	-0.5%
Academic Support	7.6% (3.3)	7.5% (3.6)	-0.1%
Student Services	5.5% (2.4)	6.1% (1.9)	+0.6%
Physical Plant	6.1% (2.1)	5.9% (2.4)	-0.2%

Note: Standard deviations are in parentheses.

Figure 1

Faculty Salaries in Relation to Total Expenditures 1994-95



*See accompanying list of institutions

List of Institutions in Figure 1

1=Northern Arizona University
2=University of Northern Colorado
3=Georgia State University
4=Illinois State University
5=Northern Illinois University
6=Western Michigan University
7=University of Southern Mississippi
8=University of Missouri-Kansas
9=University of Missouri-Rolla
10=City University of New York Graduate School
11=State University of New York at Binghamton
12=University of North Carolina at Greensboro
13=University of Akron-Main Campus
14-Bowling Green University
15=University of Toledo
16=Indiana University of Pennsylvania
17=University of Memphis
18=East Texas State University
19=University of Texas at Arlington
20=University of Texas at Dallas
21=Texas Woman's University
22=College of William and Mary

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